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March 16, 1992

Regional Administrator
United States Environmental
Protection Agency, Region 5
ATTN: Darryl Owens
Mail Code 5HS-11
230 South Dearborn Street
Chicago, Illinois 60604

Director, Solid and Hazardous
Waste Division
Minnesota Pollution Control Agency
ATTN: Site Response Section
520 Lafayette Road North
St. Paul, Minnesota 55155

President
Reilly Industries, Inc.
1510 Market Square Center
151 North Delaware
Indianapolis, Indiana 46204

RE: United States of America, et al. vs. Reilly Tar &
Chemical Corporation, et al.
File No. Civ. 4-80-469

Gentlemen:

Enclosed is the 1991 annual monitoring report submitted pursuant to Section 3.4 of the Consent Decree-Remedial Action Plan in the above captioned matter. This report is issued by the City in accordance with Section 2(a) of the Reilly/St. Louis Park Agreement (Exhibit B to the Consent Decree).

Sincerely,

A handwritten signature in cursive script, appearing to read "James N. Grube".

James N. Grube
Director of Public Works

JNG/cmr
enclosure

cc: William Gregg (w/2 enclosures)
Elizabeth Thompson (w/o enclosure)
Reilly File

3/16/91 K.4

1991 ANNUAL PROGRESS REPORT
ON THE
IMPLEMENTATION OF THE CONSENT DECREE

SUBMITTED TO THE

REGIONAL ADMINISTRATOR
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

EXECUTIVE DIRECTOR
MINNESOTA POLLUTION CONTROL AGENCY

BY

THE CITY OF ST. LOUIS PARK, MINNESOTA

PURSUANT TO
CONSENT DECREE - PART K

UNITED STATES OF AMERICA, ET AL.

VS.

REILLY TAR & CHEMICAL CORPORATION, ET AL.

UNITED STATES DISTRICT COURT
DISTRICT OF MINNESOTA
CIVIL NO. 4-80-469

MARCH 16, 1991

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1.0 INTRODUCTION

The Consent Decree in United States of America, et al. vs. Reilly Tar & Chemical Corporation, et al. (U.S. District Court, Minnesota, Civil No. 4-80-469) was signed by Judge Magnuson on September 3, 1986, and entered by the Court on the following day. The Effective Date of the Consent Decree is therefore September 4, 1986 (see Part EE of the Consent Decree).

The Consent Decree requires various actions to be taken by Reilly Industries, Inc. (Reilly), the City of St. Louis Park (City), the United States Environmental Protection Agency (USEPA), the Minnesota Pollution Control Agency (MPCA), and/or the Minnesota Department of Health (MDH). These actions are required by the Consent Decree itself, by the Remedial Action Plan (RAP) (Exhibit A to, and an integral and enforceable part of the Consent Decree, per Part F thereof), or by an Agreement between Reilly and the City (Reilly/City Agreement) (Exhibit B to, and an integral and enforceable part of the Consent Decree, per Part Q thereof, as to the rights and responsibilities between Reilly and the City).

This annual progress report (Report) submitted in accordance with the requirements of Part K of the Consent Decree describes actions taken to implement the requirements of the Consent Decree from January 1 through December 31, 1991. This report also describes activities scheduled for calendar year 1992 as required by Part K.

As an aid to the reader in following the progress of the many activities involved, this report provides separate descriptions of completed and scheduled activities required by the Consent Decree (Sections 2 and 3, respectively) and by the RAP (Sections 4 and 5, respectively). Within each section, areas of activity are discussed in the order in which they are discussed in the Consent Decree and RAP.

2.0 COMPLETED CONSENT DECREE ACTIVITIES

Part K of the Consent Decree requires that Reilly submit annual progress reports to the USEPA and MPCA by March 15, which describe actions taken to implement the requirements of the Consent Decree during the previous year and describe activities scheduled for the year in which the report is released. The 1990 annual report was submitted by the City, on behalf of Reilly, on March 15, 1991. As of December 31, 1991 no response had been provided by the Agencies relative to the accuracy of the report.

Part Q of the Consent Decree acknowledges the Reilly Agreement with St. Louis Park (Reilly/City Agreement) as Exhibit B to, and an enforceable part of, the Consent Decree. Section 2 of the Reilly/City Agreement provides that by September 3, 1990, if necessary to avoid sanitary sewer charges on the discharge from wells W23, W105, the Drift-Platteville Aquifer source control wells and gradient control well, Reilly shall plan, obtain necessary permits for, and construct a treatment facility and piping to allow effluent from the wells to be discharged to a storm sewer. On December 7, 1990 the MPCA issued an NPDES permit to allow for the discharge of wells W23, W105, and the Drift-Platteville Aquifer source control wells to the storm sewer and ultimately surface waters (Minnehaha Creek). The treatment facility was made operational on January 16, 1991, with discharge directed to the sanitary sewer until the City was satisfied the discharge could be diverted to surface waters pursuant to the conditions of the NPDES permit. On June 3, 1991 the facility discharge was diverted to surface waters and NPDES permit monitoring commenced. Section 6 of the Reilly/City Agreement provides for the establishment of a "St. Louis Park Contingency Fund" (Contingency Fund) by Reilly in the name of, and for, the City, and establishes criteria under which the Contingency Fund may be

accessed by the City. On November 28, 1989 the City advised the Parties of its intent to access the Contingency Fund to finance contingency actions pursuant to Sections 7.2.3. and 8.3. of the RAP. In correspondence dated January 18, 1990 the USEPA and MPCA acknowledged the City's intent and authorized the City to proceed with Contingency Fund access to finance the cited contingency actions. On June 24, 1991 the City certified that costs it incurred pursuant to Section 7.2.3. of the RAP were \$1,246,553. On June 25, 1991 the Contingency Fund balance of \$1,237,085 was released to the City by the fund's escrow agent.

Part R of the Consent Decree requires Reilly to make \$37,500 payment to the Environmental Response, Compensation and Compliance Fund of the Treasury of the State of Minnesota by February 28, 1991. Reilly submitted payment on February 20, 1991, meeting the established deadline.

Part Y of the Consent Decree requires Reilly to provide the USEPA and MPCA with current certification of insurance for certain specified coverages. Reilly wrote the USEPA and MPCA on July 7, 1987 to request that the excuse granted to Reilly on October 7, 1986 from meeting certain notification requirements for insurance cancellation be extended to July 1, 1988. The USEPA and MPCA approved this request on September 9, 1987. On March 28, 1991, Reilly submitted certificates of insurance for liability coverage, indicating excess coverage was in place. Reilly submitted information in partial compliance with Part Y and informed the Agencies that reasons necessitating an excuse continued to be valid, thereby causing it to request further extension of the excuse (relating to the language of the insurance certificates). As of December 31, 1991, no response had been received from the Agencies.

Part Z of the Consent Decree requires Reilly to deliver to the United States and State of Minnesota by May 31 of each year, a certificate prepared by Reilly's certified public accounting firm which sets forth whether Reilly's consolidated performance is in accord with the requirements established in the Consent Decree. On May 10, 1991, Reilly submitted a certificate prepared by Reilly's certified public accounting firm which sets forth whether Reilly's consolidated performance is in accord with the requirements established in the Consent Decree. Included therewith was a copy of Reilly's Resource Conservation and Recovery Act (RCRA) Financial Responsibility Assurance filing which the USEPA Region 5's RCRA office required under 40 CFR Section 264.143(f)(3). As of December 31, 1991, no response had been received from the Agencies.

3.0 SCHEDULED CONSENT DECREE ACTIVITIES

Part P of the Consent Decree addresses the issue of securing access agreements to conduct the various activities contemplated in the RAP. The City has commenced negotiations with various parties from whom access authorization must be attained based upon the content of Agency correspondence dated May 3, 1989. Said correspondence approved a revision in access agreement language for certain properties owned by the Minneapolis Parks and Recreation Board; however, the Agencies indicated they would review each agreement on a case by case basis. Accordingly, individual negotiations will be initiated with each affected property owner whereon the City must perform Consent Decree related activities in 1992 in an effort to secure similar agreements to those which were approved by the Agencies on May 3, 1989.

Part Q of the Consent Decree acknowledges the Reilly/City Agreement as Exhibit B to, and an enforceable part of the Consent Decree. Section 2 of the Reilly/City Agreement provides that by September 3, 1990, if necessary to avoid sanitary sewer charges on the discharge from wells W23, W105, the Drift-Platteville Aquifer source control wells and gradient control well, Reilly shall plan, obtain necessary permits for, and construct a treatment facility and piping to allow effluent from the wells to be discharged to a storm sewer. As noted in Section 2 of this Report the treatment facility was made operational in 1991, treating water discharged from wells W23, W105 and the Drift-Platteville Aquifer source control wells. To date no decision has been made on the disposition of the Drift-Platteville gradient control well discharge.

Section 9 of the Reilly/City Agreement provides for the payment by one party of costs incurred by the other party or the sharing by the parties thereto of costs incurred by one party in the implementation of the RAP. Within 30 days of the close of the calendar quarter in which the costs were incurred, the party incurring the costs shall issue a detailed statement of costs, including supporting documentation, and within 30 days of receipt of such notice, the owing party shall pay to the other its share of the costs. It is anticipated the parties will respond to said submittals in accordance with the provisions stated herein.

Part T of the Consent Decree addresses compliance with all applicable local, state, and federal laws and regulations when implementing the Consent Decree. Among its provisions is the requirement that the USEPA and MPCA approve any facility used for off-site disposal of hazardous substances generated during work undertaken pursuant to the Consent Decree. If either Reilly or the City propose to use a facility in 1992, the Agencies must confirm the status of the facility before the shipment of hazardous wastes commences.

Part Y of the Consent Decree requires Reilly to provide the USEPA and MPCA with current certification of insurance for certain specified coverages. Appropriate documentation is due in 1992.

Part Z of the Consent Decree requires Reilly to deliver to the United States and State of Minnesota by May 31, 1992, a certificate prepared by Reilly's certified public accounting firm which sets forth whether Reilly's consolidated performance is in accord with the requirements set forth in the Consent Decree.

4.0 COMPLETED RAP ACTIVITIES

Progress continued in the implementation of the RAP during 1991. Operation of source/gradient control wells occurred throughout the year, impacting flows in the Ironton-Galesville Aquifer (W105) Prairie du Chien-Jordan Aquifer (W23), St. Peter Aquifer (W410) and the Drift-Platteville Aquifer (W420, W421, W422). In addition monitoring of the Mount Simon-Hinckley, Ironton-Galesville, Prairie du Chien-Jordan, St. Peter, and Drift-Platteville Aquifers was undertaken. Table 1 summarizes the progress made in completing the many activities contemplated in the RAP. Further details on the various RAP activities are provided below.

Section 2.9. of the RAP authorizes Reilly at any time to submit a plan to the USEPA and MPCA to change the discharge of any source control or gradient control well that is required to be discharged to the sanitary sewer by the provisions of the RAP to a surface water body. On November 20, 1989 Reilly submitted a proposed "Plan for Discontinuing Sanitary Sewer Discharges at the Reilly Tar & Chemical Corporation N.P.L. Site" (Plan). The Plan provided for the routing of discharges from wells W23, W105, and the Drift-Platteville Aquifer source control wells to the storm sewer after treatment for iron/manganese removal and PAH removal. Based upon extensive treatability testing carried out over 1989, Reilly proposed iron/manganese removal via sand filtration and PAH removal via granular activated carbon. On December 19, 1989 the MPCA provided comments on the Plan and sought clarifications/revisions to satisfy NPDES permitting criteria. On February 22, 1990 the USEPA and MPCA issued a joint comment letter wherein additional issue clarification/Plan revision was sought. On March 23, 1990 Reilly submitted revisions to the Plan which addressed the Agencies' comments of December 19, 1989 and February 22, 1990. On May 14, 1990 a representative of the MPCA

TABLE 1
STATUS OF RAP ACTIVITIES - 1991

<u>RAP SECTION</u>	<u>ITEM</u>	<u>ACTIVITIES</u>
2.9.	Discontinue Sanitary Sewer Discharges	6/3/91
3.2./3.3.	1991 Annual Sampling Plan	Plan submitted by City on 10/31/90; plan revisions submitted 2/14/91; Agency approval issued 3/11/91
3.2./3.3.	1992 Annual Sampling Plan	Plan submitted by City on 10/31/91; Agency approval issued 1/14/92
3.4.	1990 Annual Monitoring Report	Report submitted by City on 3/15/91
4.2.	GAC System Operation	System off line from 2/19/91 to 5/9/91; carbon replaced 4/29/91 through 5/2/91
4.3.	GAC System Monitoring	Samples collected as outlined in the Sampling Plan
5.1.	Mount-Simon Hinckley Monitoring	Annual monitoring completed
6.1.3.	Operation of W105 Source Control Well	Discontinued 12/13/91 pursuant to receipt of Agency authorization
6.1.4.	W105 Monitoring	Monitoring completed as outlined in the Sampling Plan
7.1.3.	Operation of W23 Source Control Well	Pumping during 1991 occurred without incident
7.2.2.	SLP4 Feasibility Study	FS report and NPDES permit submitted by City on 6/20/87; Agency comments provided on 9/17/87; response by City submitted 10/8/87; public meeting held 12/1/87; Minneapolis sponsored public meeting held 9/22/88; City notified Parties of intent to treat and use discharge on 12/4/89; preliminary plans submitted 12/20/90; construction contract awarded 4/15/91
7.3.	Prairie du Chien-Jordan Aquifer monitoring	Completed as outlined in Sampling Plan
8.1.3.	St. Peter Aquifer monitoring	Completed as outlined in Sampling Plan

Table 1 (continued)
Status of RAP Activities - 1991

8.2.2.	Feasibility Study Report	City submitted report on 11/15/89; Agency response issued 3/15/90; revised report submitted by City on 4/26/90; Public meeting 5/16/90; Record of Decision issued by Agencies 9/28/90; W410 started pumping 5/30/91
9.1.3.	Operation/monitoring of Drift-Platteville Aquifer source control wells	Pumping during 1991 occurred without incident; quarterly monitoring completed
9.2.3.	Operation/monitoring of Drift-Platteville Aquifer gradient control well	Pumping during 1991 occurred without incident; quarterly monitoring completed
9.3.3.	Drift-Platteville Aquifer monitoring	Completed as outlined in Sampling Plan
9.3.4.	Remedial Investigation Report	City submitted report on 3/30/89; Agency comment issued on 5/26/89; modified report submitted by City on 6/19/89; Agency approval issued on 9/13/89; supplemental Work Plan issued by City on 7/23/90; plan revision submitted by City on 8/23/90; Agency approval issued 10/12/90; report submitted by City 7/15/91; Agency comments issued 9/9/91; revised report issued 10/21/91; Technical Memorandum submitted by City 10/21/91
9.4.1.	Feasibility Study Plan	City submitted plan on 10/16/89; Agency approval issued on 12/31/89
9.4.2.	Feasibility Study Report	City submitted report on 11/15/89; Agency comment issued 4/4/90; study submitted by City 7/15/91; Agency comment issued 9/9/91; revised study submitted by City 10/21/91
9.6.	Drift-Platteville Aquifer monitoring	Completed as outlined in Sampling Plan
10.1.1.	Deep Multi-Aquifer Wells	Plan submitted by City on 9/3/87; Agency comment issued 10/16/87; City response submitted 11/5/87
10.2.1.	St. Peter Multi-Aquifer Wells	Plan submitted by City on 3/27/91
11.4.	T.H. 7/Louisiana Avenue Intersection	Construction contract awarded by City on 5/6/91
11.4./11.5.	Contaminated Soils	Generated and secured by City during T.H. 7/Louisiana Avenue construction

provided additional comments regarding certain elements of the Detailed Design Report submitted in conjunction with the Plan. Construction activities began at the facility on August 13, 1990, and on December 7, 1990 the MPCA issued the NPDES permit. The facility was made operational on January 16, 1991, and on June 3, 1991 the facility discharge was diverted to surface waters.

Section 3.3. of the RAP requires Reilly to submit annual Sampling Plans to the USEPA and MPCA. Section 2(a) of the Reilly/City Agreement provides that the City assume all of Reilly's obligations under Section 3 of the RAP. The City submitted its proposed 1991 Sampling Plan on October 31, 1990. Pursuant to Project Leader discussions between the Agencies and City, the City submitted revisions to the Sampling Plan on February 14, 1991. On March 11, 1991 the Agencies approved the 1991 Sampling Plan.

The City submitted its proposed 1992 Sampling Plan on October 31, 1991 in accordance with the requirements of RAP Section 3.3.. On January 24, 1992 the Agencies approved the 1992 Sampling Plan.

Section 3.4. of the RAP requires Reilly to submit an Annual Report to the USEPA and MPCA containing the results of all monitoring during the previous calendar year. The City submitted the 1990 Annual Report on behalf of Reilly on March 15, 1991. On March 29, 1991 the MPCA's Alternate Project Leader notified the City's Project Leader that the MPCA questioned the results of the January 30, 1990 monitoring event. In a letter to the Parties dated April 2, 1991 the City clarified its position on the results of the monitoring and lack of administrative action related thereto.

Insofar as the City is responsible for submitting a report for 1991 activities, the USEPA, MPCA, and Reilly will receive the document under separate cover.

The City operated the granular activated carbon (GAC) treatment system in compliance with Section 4.2. of the RAP during 1991, treating 312.1 million gallons of water. The lowest monthly pumping total was 10 million gallons (in May), while the highest monthly pumping total was 45.3 million gallons (in December).

On February 19, 1991 the City notified the USEPA, MPCA and Reilly that results of December 27, 1990 monitoring indicated that the sum of Other PAH in the treated effluent exceeded Drinking Water Criterion, thereby necessitating carbon replacement. The treatment system was removed from operation on February 19, 1991 and was not operated until March 19-29 and April 9-16, 1991, when the treated effluent was discharged to surface waters. The goal of the March and April pumping was to attain a minimum monthly treatment volume of 10 million gallons.

A review of records indicates 369 million gallons of water were treated by the system's fifth carbon load between June, 1990 and May, 1991 (283.3 million gallons in 1990, 85.7 million gallons in 1991).

Insofar as Section 4.3.5. of the RAP requires that an annual report of the results of all GAC system monitoring completed in 1991 be reported by March 15, 1992, the City will forward a copy of said report to the USEPA, MPCA, MDH, and Reilly under separate cover by the required date.

Section 5.1. of the RAP requires Reilly to monitor the City's Mount Simon-Hinckley Aquifer wells on an annual basis. Section 2(a) of the Reilly/City Agreement provides that the City complete this task on behalf of Reilly. The City completed the Mount Simon-Hinckley Aquifer monitoring in compliance with Section 5.1. of the RAP, and the results have been presented in an annual report issued in accordance with Section 3.4. of the RAP.

Section 6.1.3. of the RAP requires Reilly to pump W105 at a monthly average rate of 25 gallons per minute (gpm) until such time as the well's discharge is in compliance with cessation criteria contained in Section 6.1.5. of the RAP. On January 14, 1991 the City submitted data indicating the well's discharge was in compliance with cessation criteria contained in Section 6.1.5. of the RAP and sought Agency authorization to discontinue the well's operation. In response to an MPCA request for further documentation, the City submitted additional data on February 5, 1991. On June 17, 1991 the Agencies sought further documentation, and on August 12, 1991 the requested information was submitted by the City. On December 4, 1991 the Agencies authorized the City to discontinue the pumping of well W105, and on December 13, 1991 the well was shut down. As the City awaited authorization to discontinue the pumping of W105, it operated the well and has performed necessary periodic inspections as outlined in a plan approved under Section 6.1.1. of the RAP. A summary of the 1991 monthly pumpage is as follows:

<u>Month</u>	<u>Total Pumpage (Gallons)</u>	<u>Flow Rate (Gallons per Minute)</u>
January	1,195,196	26.8
February	1,068,191	26.5
March	1,204,914	27.0
April	1,140,782	26.4
May	1,093,786	24.5
June	1,123,591	26.0
July	1,398,525	31.3
August	1,428,062	32.0
September	1,262,346	29.2
October	1,150,596	25.8
November	1,135,035	26.3
December	454,939*	25.6

*W105 shut down at 8:50 A.M. 12/13/91

As noted above the average monthly pumping rate in May (24.5 gpm) was less than the required 25 gpm rate. A review of pumping records revealed no information which could explain the reduction in well output. Based upon total pumpage in 1991, W105 was operated at an average rate of 27.4 gpm. Accordingly, the intent of RAP Section 6.1.3. was met.

Section 6.1.4. of the RAP requires Reilly to monitor W105 on a biannual basis. Section 2(a) of the Reilly/City Agreement provides that the City complete this task on behalf of Reilly. The City completed the monitoring in accordance with Section 6.1.4. of the RAP and the results have been presented in an annual report issued in accordance with Section 3.4. of the RAP.

Section 7.1.3. of the RAP requires Reilly to pump W23 at a monthly average rate of 50 gpm. Section 2(a) of the Reilly/City Agreement provides that the City operate W23 beginning the day pumping is started. Accordingly, the City has operated the well and has performed necessary periodic inspections as outlined in a plan approved under Section 7.1.1. of the RAP. A summary of the 1991 monthly pumpage is as follows:

<u>Month</u>	<u>Total Pumpage (Gallons)</u>	<u>Flow Rate (Gallons per Minute)</u>
January	2,373,682	53.2
February	2,027,036	50.3
March	2,226,952	49.9
April	2,252,152	52.1
May	2,054,492	46.0
June	2,184,373	50.6
July	2,532,527	56.7
August	2,301,161	51.5
September	2,132,277	49.4
October	2,244,493	50.3
November	2,265,453	52.4
December	2,281,968	51.1

The pumpages for March, May, and September, 1991 failed to meet the specified 50 gpm rate. A review of pumping records revealed no information which could explain the reduction in well output during March, May, and September. Based upon total pumpage in 1991, W23 was operated at an average rate of 51.1 gpm. Accordingly, the intent of RAP Section 7.1.3. was met.

Section 7.2.1. of the RAP requires Reilly to submit to the USEPA and MPCA a plan for a feasibility study for discharge of water from municipal well SLP4 when operated as a Prairie du Chien-Jordan Aquifer gradient control well. Section 2(a) of the Reilly/City Agreement provides that the City will assume this obligation for Reilly. The City submitted the Feasibility Study Report on June 30, 1987, the contents of which supported its finding that the discharge to Minnehaha Creek was the preferred alternative. Also submitted by the City on June 30, 1987 was an NPDES permit application, as required by Section 7.2.2. of the RAP. The USEPA and MPCA provided the City with comments on the Feasibility Study Report on September 17, 1987. The City submitted its response to the Agencies' comments on October 8, 1987. No response was received from the Agencies, however, the City was notified that the Agencies wished to sponsor a public meeting regarding the Feasibility Study Report and its findings.

The public meeting was held on December 1, 1987, with the USEPA, MPCA, and City represented by the respective Project Leaders. Also participating was the MPCA Alternate Project Leader. Transcripts of the meeting have been provided to the USEPA, MPCA, City and Reilly.

In conjunction with the public meeting, the USEPA placed a notice in the City's official newspaper, noting that the USEPA would accept comments from the public relative to the Feasibility Study Report content/recommendation until December 21, 1987. On December 18, 1987, the Minneapolis Park and Recreation

Board submitted a letter to the USEPA summarizing its concerns relative to flooding, water contamination and safety. On February 2, 1988, the Minnehaha Creek Watershed District adopted a resolution favoring the discharge of water from SLP4 to Lake Calhoun, in Minneapolis. On February 10, 1988, the City notified the City of Minneapolis, via letter, of its willingness to participate in the review of discharge options, and on February 12, the City notified the USEPA, MPCA, and Reilly Project Leaders, requesting comment on the City's willingness to review the discharge options. Much discussion was held relative to the discharge options available, and on March 8, 1988, the City of Minneapolis, via letter from its Mayor to the City's Mayor, confirmed that its Public Works and Park and Recreation Board staffs were collaborating with the City to determine the feasibility of pumping water from SLP4 to Lake Calhoun.

In response to questions raised by the Minneapolis Park and Recreation Board, the City developed an environmental review (dated June, 1988) regarding the anticipated effects of pumping water from SLP4 to Lake Calhoun. This review was commenced pursuant to issuance of a May 3, 1988 letter by the City's Project Leader to the USEPA, MPCA, and Reilly Project Leaders wherein the City's intent was communicated. In addition, the City developed preliminary plans for the construction of a submerged outlet for the SLP4 discharge system in Lake Calhoun. On July 19, 1988, the MPCA Project Leader issued a letter to the City Project Leader and Minneapolis Park and Recreation Board President relative to the content of the referenced June, 1988 environmental review.

On September 22, 1988, the City Project Leader, MPCA Project Leader, and Alternate MPCA Project Leader attended a public meeting sponsored by the Minneapolis Park and Recreation Board wherein the proposal to discharge water from SLP4 to Lake Calhoun was presented. As a result of the reluctance to accept the water exhibited by area residents, the Lake Calhoun discharge option

was no longer considered acceptable by the City of Minneapolis. Accordingly, the City commenced a reevaluation of its position relative to the disposal of SLP4 discharge. In written correspondence dated December 4, 1989, the City's Project Leader notified the USEPA, MPCA, and Reilly Project Leaders of the City's intent to treat the SLP4 discharge for polynuclear aromatic hydrocarbon (PAH) removal via granular activated carbon and place the effluent into the municipal drinking water supply. The December 4, 1989 correspondence established a proposed schedule for the design/construction activities and acknowledged the Agencies had design review authority.

On December 20, 1990 the City submitted design plans for the treatment plant construction to the USEPA and Reilly (MPCA had received the plans previously), and on April 15, 1991 the City awarded a contract for the construction of the facility. As of December 31, 1991 the treatment plant was nearly 70 percent completed.

Section 7.3. of the RAP requires Reilly to monitor the Prairie du Chien-Jordan Aquifer as specified in Section 3. of the RAP. Section 2(a) of the Reilly/City Agreement provides that the City will assume this obligation for Reilly. Monitoring of the aquifer was completed by the City in substantial compliance with Sections 3. and 7.3. of the RAP, and information relative to the monitoring can be found in the annual report submitted pursuant to Section 3.4. of the RAP.

In correspondence dated September 13, 1989 the USEPA and MPCA approved a revised St. Peter Aquifer Remedial Investigation Report (Report) issued in accordance with Section 8.1.4. of the RAP. In addition, the USEPA and MPCA advised the City and Reilly that pursuant to Part H of the Consent Decree and Section 8.2.1. of the RAP, a Feasibility Study was required for the St. Peter Aquifer.

Section 8.2.1. of the RAP requires Reilly to submit a plan for a Feasibility Study in the St. Peter Aquifer to the USEPA and MPCA within 30 days of receiving notice that a Feasibility Study Plan is required. Section 2(a) of the Reilly/City Agreement provides that the City complete this task on behalf of Reilly. On October 16, 1989 the City indicated in correspondence to the USEPA and MPCA that it had proactively begun the Feasibility Study work by providing for the recompletion of monitor well W410 as a potential gradient control well and completion of an aquifer test at the site to determine the capacity of the well and response of the aquifer to pumping (referred to in July 13, 1989 correspondence between the Project Leaders). On December 21, 1989, the USEPA and MPCA approved the Feasibility Study Plan of October 16, 1989.

Sections 8.2.2. and 8.3. of the RAP address the issuance of a Feasibility Study Report to the USEPA and MPCA within 90 days of receiving approval of the Feasibility Study Plan, and remedial actions for the purpose of preventing the further spread of ground water exceeding any of the Drinking Water Criteria defined in RAP Section 2.2. respectively. Section 2(a) of the Reilly/City Agreement provides that the City complete these tasks on behalf of Reilly. On November 15, 1989 the City submitted the results of the testing pumping of well W410, indicating the establishment of a gradient control well at W410 could control the spread of PAH in the aquifer related to Reilly Tar & Chemical Corporation activities. On March 15, 1990 the USEPA and MPCA indicated the Agencies concurred that the use of W140 as a gradient control well was substantiated by the November 15, 1989 information; however, the Agencies could not approve the report as a formal Feasibility Study. The March 15 Agency correspondence established a proper format for the Feasibility Study. On April 10, 1990 the City indicated to the Parties that it was in the process of

developing a formal Feasibility Study pursuant to the Agencies' correspondence of March 15, and requested a 30 day extension of the April 10 submittal deadline pursuant to Part N of the Consent Decree. On April 26 the City submitted the Feasibility Study pursuant to the provisions of Section 8.2. of the RAP.

On May 16, 1990 the MPCA sponsored a public meeting to discuss the contents of the Feasibility Study, including the proposed use of W410 as a gradient control well.

On September 28, 1990 the USEPA and MPCA issued a Record of Decision indicating the proposed pumping of W410 as a gradient control well is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost effective.

On April 1, 1991 the Agencies notified the City that it was to submit a plan for a gradient control system to prevent the further spread of St. Peter Aquifer groundwater exceeding any of the Drinking Water Criteria for polynuclear aromatic hydrocarbons (PAH) defined in the Consent Decree - RAP. On April 15, 1991 the City directed the Parties' attention to the City's St. Peter Aquifer Feasibility Study submitted on April 26, 1990. The City's April 15, 1991 letter indicated that well W410 had been reconstructed as a gradient control well and it had been prepared for discharge to the sanitary sewer.

The April 1, 1991 Agency letter also sought comment from the City relative to the development of cessation criteria for which the gradient control system will be evaluated. The City's April 15, 1991 letter proposed cessation criteria.

On June 3, 1991 the City notified the parties that well W410 had been placed in operation on May 30, 1991. In order to attain a 65-100 gpm pumping rate, the City placed the pump system's control valve at 70 gpm. A summary of the 1991 monthly pumpages is as follows:

<u>Month</u>	<u>Total Pumpage (Gallons)</u>	<u>Flow Rate (Gallons per Minute)</u>
June	3,240,000	75.0
July	3,175,812	71.1
August	3,152,603	70.6
September	3,050,296	70.6
October	3,171,938	71.1
November	3,041,336	70.4
December	3,122,383	69.9

Monitoring of St. Peter Aquifer monitor wells occurred in accordance with the provisions of the 1991 Sampling Plan. A report of the results and the effectiveness of well W410 as a gradient control well can be found in an annual report issued pursuant to Section 3.4. of the RAP.

Section 9.1.3. of the RAP requires Reilly to operate the Drift-Platteville Aquifer source control wells at a monthly rate of 25 gpm and monitor them on a quarterly basis. Section 2(a) of the Reilly/City Agreement provides that the City operate the wells beginning the day pumping is started and monitor them as required. Accordingly, the City has operated the wells and has performed necessary periodic inspections as outlined in a plan approved under Section 9.1.1. of the RAP.

From July to November, 1989 the pumping rate of the wells was increased to evaluate if the wells could be used as gradient control wells in the Northern Area of the Drift-Platteville Aquifer. Upon completion of the evaluation, the Drift Aquifer source control well was operated at approximately 40 gpm and the Platteville Aquifer source control well was operated at approximately 25 gpm. A summary of the 1991 monthly pumpages is as follows:

<u>Month</u>	<u>DRIFT SOURCE CONTROL WELL</u>		<u>PLATTEVILLE SOURCE CONTROL WELL</u>	
	<u>Total Pumpage (Gallons)</u>	<u>Flow Rate Gallons (Per Minute)</u>	<u>Total Pumpage (Gallons)</u>	<u>Flow Rate Gallons (Per Minute)</u>
January	1,848,056	41.4	1,177,025	26.4
February	1,655,286	41.1	1,054,411	26.2
March	1,643,569	36.8	1,225,260	28.1
April	1,617,187	37.4	1,132,365	26.2
May	1,666,626	37.3	1,166,549	26.1
June	1,636,603	37.9	1,145,885	26.5
July	1,617,747	36.2	1,132,406	25.4
August	1,641,455	36.8	1,290,365	28.9
September	1,612,665	37.3	1,290,270	29.9
October	1,609,314	36.1	1,287,569	28.8
November	1,618,070	37.5	1,292,660	29.9
December	1,666,665	37.3	1,332,216	29.8

As noted above the Drift Aquifer source control well did not pump at an average rate of 40 gpm during 1991; however the annual average flow rate was at least 90 percent of the 40 gpm rate. The City is investigating methods to attain the 40 gpm rate and will take appropriate action to attain the rate.

Monitoring of the Drift Aquifer source control wells occurred on a quarterly basis pursuant to the requirements of Sections 3.2. and 9.1.3. of the RAP. A report of the results can be found in an annual report issued pursuant to Section 3.4. of the RAP.

Section 9.2.3. of the RAP requires Reilly to operate the Drift Aquifer gradient control well at a monthly rate of 50 gpm and monitor it on a quarterly basis. Section 2(a) of the Reilly/City Agreement provides that the City operate the well beginning the day pumping is started and monitor it as required. Accordingly, the City has operated the well and has performed

necessary periodic inspections as outlined in a plan approved under Section 9.2.1. of the RAP.

On May 3, 1991 the pumping rate of the well was increased to 65-70 gpm determine its effect on monitor wells in the Northern Area. As noted in the following summary, the well discharged approximately 65 gpm in May, June, and July. In August various operational problems plagued the well's operation, and on August 18, it appeared the pumping rate was exceeding the well's ability to produce water. Accordingly, the well pump was controlled at a 50-55 gpm rate. On January 8, 1992 the well was reconditioned and the pumping rate was reset to 65-70 gpm. Following is a summary of the 1991 pumpages.

<u>Month</u>	<u>Total Pumpage (Gallons)</u>	<u>Flow (Gallons Per Minute)</u>
January	2,362,932	52.9
February	2,130,712	52.8
March	2,362,138	52.9
April	2,093,814	48.5
May	2,890,299	64.7
June	3,188,160	73.8
July	2,995,371	67.1
August	1,750,736	39.2
September	2,263,486	52.4
October	2,359,311	52.9
November	2,502,332	57.9
December	2,450,612	54.9

Monitoring of the Drift Aquifer gradient control well occurred on a quarterly basis pursuant to the requirements of Sections 3.2. and 9.2.3. of the RAP. A report of the results can be found in an annual report issued pursuant to Section 3.4. of the RAP.

Section 9.3.4. of the RAP requires Reilly to submit a Drift-Platteville Aquifer Northern Area Remedial Investigation Report (RI Report) to the USEPA and MPCA that summarizes the results of the Drift-Platteville Aquifer remedial investigation within 90 days of completing two rounds of monitoring. Section 2(a) of the Reilly/City Agreement provides that the City complete this task on behalf of Reilly. The City submitted the RI Report on March 30, 1989. On April 28, 1989 the USEPA and MPCA notified the City and Reilly that the Agencies were extending the RI Report review period by 30 days pursuant to the provisions of Part G.2. of the Consent Decree. On May 26, 1989 the USEPA and MPCA issued a joint comment letter wherein the Agencies sought clarification of and revisions to the RI Report content. On June 19, 1989 the City submitted an amendment to the RI Report, clarifying issues and amending RI Report content in response to the Agencies' correspondence of May 26. On July 21, 1989 the USEPA and MPCA notified the City and Reilly that the Agencies were extending the review period of the RI Report revisions pursuant to Part G.2. of the Consent Decree. In correspondence dated September 13, 1989, the USEPA and MPCA approved the revised RI Report and acknowledged the City had commenced a limited Feasibility Study to determine the effectiveness of existing wells in controlling PAH contamination movement within the aquifer pursuant to the requirements of Section 9.4. of the RAP. This acknowledgement was based upon the content of a June 30, 1989 letter from the City's Project Leader to the USEPA, MPCA, and Reilly Project Leaders. On October 16, 1989 the City submitted to the USEPA and MPCA a proposed Feasibility Study Plan required under the provisions of RAP Section 9.4.1.. On December 21, 1989 the USEPA and MPCA approved the Northern Area Feasibility Study Plan, dated October 16, 1989.

Section 9.4.2. of the RAP requires Reilly to submit a Feasibility Study Report within 90 days of receiving approval of the Feasibility Study Plan.

Section 2(a) of the Reilly/City Agreement provides that the City complete this task on behalf of Reilly. On November 15, 1989 the City submitted a report on the evaluation of the effectiveness of the Drift-Platteville Aquifer source control well system to limit the further spread of contamination in the Northern Area. In correspondence dated April 4, 1990 the USEPA and MPCA notified the City and Reilly that the Agencies did not consider the existing source control and gradient control well systems to be adequate in controlling the movement of contaminated water located in the southern edge of the Drift-Platteville Aquifer northern area. The Agencies did concur that a Platteville Aquifer gradient control well is needed to control contamination movement. Further, the Agencies indicated it was believed an additional Drift Aquifer gradient control well may be required to control contamination movement. In correspondence dated April 25 the City acknowledged receipt of the Agencies' April 4 letter and indicated it was reformatting its November 15, 1989 submittal to conform to Feasibility Study Report format, and the City sought a 30 day extension of the April 25 submittal deadline pursuant to Part N of the Consent Decree. In correspondence dated May 25, 1990 the City indicated its desire to address the Agencies' concern with the Drift-Platteville Feasibility Study by conducting a supplemental Remedial Investigation. In correspondence dated May 30, 1990 the MPCA acknowledged a MPCA/City Project Leader meeting of May 15, 1990, wherein the specifics of the City's May 25 correspondence were established. The MPCA correspondence provided greater Agency insight relative to the scope of the supplemental Remedial Investigation. On July 23, 1990 the City submitted a supplemental Remedial Investigation Work Plan for the Drift-Platteville Aquifer pursuant to Section 9.3. of the RAP, and on August 27, 1990 issued a Work Plan amendment. On September 6, 1990 the City submitted plans and specifications for the installation of monitor wells in the Drift-

Platteville Aquifer, as contemplated in the supplemental Remedial Investigation. On October 12, 1990 the USEPA and MPCA approved the July 23, 1990 Work Plan (as amended on August 27, 1990) with conditions. In correspondence dated October 23, 1990 the City indicated to the Parties' Project Leaders that monitor well construction was scheduled to begin on or after October 25, with test pumping of a Platteville Aquifer well scheduled for the week of November 5. Work was actually completed by December 31, 1990; however, Platteville Aquifer test pumping in December, 1990 and January, 1991 failed to provide adequate information to ascertain the ability of the Platteville Aquifer gradient control well to control the movement of contaminants in the aquifer. On January 24, 1991 the MPCA Project Leader and Alternate Project Leader met with the City's Project Leader and Reilly's Alternate Project Leader to discuss further actions relative to the control of contaminant movement in the Platteville Aquifer.

On March 27, 1991 the Reilly Alternate Project Leader, on behalf of the City, notified the Project Leaders of the status of the Drift-Platteville Aquifer Northern Area Supplemental Remedial Investigation. The status update indicated that the December, 1990/January, 1991 Platteville Aquifer test pumping indicated that a well constructed for the purpose of future gradient control operations was incapable of adequately controlling groundwater movement within the aquifer in the subject area. It was noted that a replacement well may be necessary. The replacement well was constructed in May, 1991.

On July 15, 1991 the City submitted the Drift-Platteville Northern Area Feasibility Study. The Feasibility Study indicated the existing Drift-Platteville Aquifer source and gradient control wells are not containing the contamination within the Northern Area of the Platteville Aquifer. Further,

it was noted that low transmissivity in the Platteville Aquifer limited the effectiveness of a proposed gradient control well. However, the well was determined to be ideally located to intercept Drift-Platteville Aquifer groundwater before it moves into the St. Peter Aquifer via a buried bedrock valley. The Feasibility Study concluded the well should be operated for such purpose.

On September 9, 1991 the USEPA and MPCA submitted comments relative to the content of the Drift-Platteville Aquifer Northern Area supplemental Remedial Investigation and Feasibility Study. On September 30, 1991 the City sought a 20 day extension for the resubmittal of amended supplemental Remedial Investigation and Feasibility Study pursuant to Part N of the Consent Decree.

On October 15, 1991 the USEPA and MPCA approved the City's September 30, 1991 request of extension, indicating the Agencies understood certain document revisions would be included in the resubmittals.

On October 21, 1991 the City submitted an amended Drift-Platteville Aquifer Northern Area supplemental Remedial Investigation and an amended Feasibility Study. On October 22, 1991 the City submittal additional information intended for submittal on October 21, 1991.

Included in the October 21, 1991 City submittal was a Technical Memorandum to the Parties containing a work plan for a hydrogeologic investigation of the Drift-Platteville Aquifer. On December 2, 1991 the City awarded a contract for the construction of four Platteville Aquifer monitor wells. Three of the four wells were constructed in December, 1991 and January, 1992; however, the fourth well was abandoned when it was determined that the Platteville Formation is not present at the well site. A report summarizing the investigation activities and results will be submitted by the City on April 30, 1992.

Section 10.1.1. of the RAP requires Reilly to submit to the USEPA, MPCA and MDH, within one year of the Effective Date, a plan for investigating certain multi-aquifer wells that may be adversely affecting the Mt. Simon-Hinckley, Iron-ton-Galesville and Prairie du Chien-Jordan Aquifers. Section 2(a) of the Reilly/City Agreement provides that the City will assume this obligation for Reilly. The City submitted an "Investigation Plan for Leaking Deep Multi-Aquifer Wells" on September 3, 1987 and received the Agencies' joint response letter on October 19, 1987. The Agencies' letter presented a number of questions and comments relative to the City's submittal, and requested clarification of issues raised. On November 5, 1987 the City issued its response letter, addressing the issues presented in the Agencies' letter. No Agency response to the November 5, 1987 letter has been received.

Section 10.2.1. of the RAP requires Reilly to submit a Work Plan for investigating leaking multi-aquifer wells in the St. Peter Aquifer to the USEPA, MPCA, and MDH within 180 days of notice from the Agencies that such a plan is required. Section 2(a) of the Reilly/City Agreement provides that the City will assume this obligation for Reilly. The City submitted the Work Plan on March 27, 1991. No Agency response to the March 27, 1991 submittal has been received.

Section 11.4. of the RAP addresses the construction of the Trunk Highway 7/Louisiana Avenue intersection. On October 19, 1989 the City notified the USEPA and MPCA that the Minnesota Department of Transportation had committed funds for the construction of the intersection in fiscal year 1990. On December 21, 1989 the USEPA and MPCA acknowledged receipt of the notification.

On March 22, 1990 the City submitted plans and specifications for the construction to the USEPA and MPCA. On April 4, 1991 revised plans and specifications were submitted to the Agencies by the City, and on May 6, 1991 a construction contract was awarded.

On May 2, 1991 the City presented a proposal to the MPCA regarding the disposition of contaminated soils generated during the Trunk Highway 7/Louisiana Avenue intersection construction pursuant to Section 11.5.4. of the RAP. On May 13, 1991 the MPCA offered comments regarding the content of the City's May 2, 1991 letter. On May 24, 1991 the City responded to the MPCA comments of May 13, 1991 and offered additional information for consideration.

As of December 31, 1991 the Trunk Highway 7/Louisiana Avenue intersection is nearly constructed and approximately 150 cubic yards of contaminated soils have been generated and placed in a fenced security area on the site. The MPCA and City continue to examine disposal options to be implemented when construction is completed in 1992.

5.0 SCHEDULED RAP ACTIVITIES

Table 2 summarizes the expected schedule for RAP activities during 1992. Many of the schedule dates cannot be established definitely because they depend on Agency review, inspection, and approval. Groundwater monitoring is an essential ongoing task. In addition, the construction of municipal well SLP4 as a gradient control well is scheduled to be completed in 1992.

QAPP92/annrep91

TABLE 2
EXPECTED RAP ACTIVITIES - 1992

<u>RAP SECTION</u>	<u>ITEM</u>	<u>EXPECTED TIMETABLE</u>
3.3.	Sampling Plan for 1992	Agency approval - 1/24/92
3.3.	Sampling Plan for 1993	City to submit plan 10/31/92
3.4.	1991 Annual Report	City to submit report 3/16/92
4.3.	GAC Plant Monitoring	Continued monitoring in accordance with the RAP.
4.3.5.	1991 GAC Annual Report	City to submit report 3/16/92
5.1.	Mount Simon Hinckley Aquifer Monitoring	Refer to Sampling Plan
6.1.4.	W105 Monitoring	Refer to Sampling Plan
7.2.4.	SLP4 Completion	Scheduled for 1992
7.3.	Prairie du Chien-Jordan Aquifer Monitoring	Refer to Sampling Plan
8.1.3.	St. Peter Aquifer Monitoring	Refer to Sampling Plan
8.3	St. Peter Aquifer Remedial Action - Gradient Control Well Operation	Ongoing
9.1.3.	Monitoring Drift-Platteville Aquifer Source Control Wells	Refer to Sampling Plan
9.2.3.	Monitoring Drift-Platteville Aquifer Gradient Control Well	Refer to Sampling Plan
9.3/9.4	Drift-Platteville Aquifer Hydrologic Investigation of the Northern Area	City to submit results and recommendations 4/30/92
9.6.	Drift-Platteville Aquifer Monitoring	Refer to Sampling Plan
10.1.	Multi-Aquifer Well Investigation/Report	Agency comment due; City to complete investigation within one year of Agency approval
10.2.1.	Multi-Aquifer Well Work Plan	Agency comment due: City to complete investigation within one year of Agency approval
11.4.	Louisiana Avenue/Trunk Highway 7 Intersection	City to complete construction
11.4/11.5	Disposition of Contaminated Soils	City/MPCA to evaluate options and select an alternative